

Letters to the Editor: Comments

Economic Allocation and Value-Corrected Substitution

Comments to 'Economic Allocation in LCA' by Frank Werner and Klaus Richter

In a recent paper, "Economic allocation in LCA: A case study about aluminium window frames" (Int. J. LCA 5 (2) 79-83), Frank Werner & Klaus Richter worked out a method for solving the multifunctionality problem as this results from the recycling of (post-use) materials, in an example on aluminium window frames.

In the method, the worked-up material substitutes for virgin material, in line with the substitution procedure as specified in step 1 of the allocation chapter in ISO 14041. The authors add a new element, which is to correct this substitution for the lower value of the recycled material as compared to that of the virgin material. The value is expressed in money terms. Although aluminium prices fluctuate, the price ratio between primary aluminium and different types of secondary aluminium is quite stable. So, in cases like that of aluminium window frames, this method can be applied quite straight forwardly.

This useful contribution to the substitution procedure has been named 'economic allocation' by the authors. This name may easily lead to confusion, as in ISO step 3 on allocation, the option of partitioning the process according to economic principles is mentioned explicitly. For this type of partitioning, it is quite logical and common to use the term "economic allocation". As step 1 of ISO, regarding the avoidance of allocation, specifically mentions substitution, it seems wise to change the name the authors gave into the **value-corrected substitution method**. I discussed this with the authors. They agree that this is a more appropriate term for their method. Economic allocation can remain what it was: one way to fill in ISO step 3.

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Reply to the 'Letter to the Editor' by Gjalt Huppes

The comment by Gjalt Huppes on the appropriate naming of the allocation procedure described in our article 'Economic allocation in LCA: A case study about aluminium window frames' (WERNER and RICHTER, 2000) as 'value-corrected substitution' is very welcome for several reasons:

First of all, it describes the underlying principle in a much more concise way and leaves the terminus 'economic allocation' to an allocation procedure borrowed from economic cost accounting.

Fig. 1 shows the status of both the value-corrected substitution and the economic allocation within the stepwise allocation procedure for reuse and recycling according to (EN ISO 14041, Chap. 6.4).

Secondly, it gets obvious that closed loop recycling has to be considered a special case of open loop recycling, as all the material actually leaves the system under study (apart from the closed loop situation in a strict sense). Some more explanations on this point:

The standard EN ISO 14041 distinguishes between allocation for closed material cycles (closed loop) and allocation for open material cycles (open loop) (EN ISO 14041, Chap. 6.4.3):

A closed loop allocation procedure applies to closed loop product systems. It also applies to open loop product systems where no changes occur in the inherent properties of the recycled material. In such cases, the need for allocation is avoided since the use of secondary material displaces the

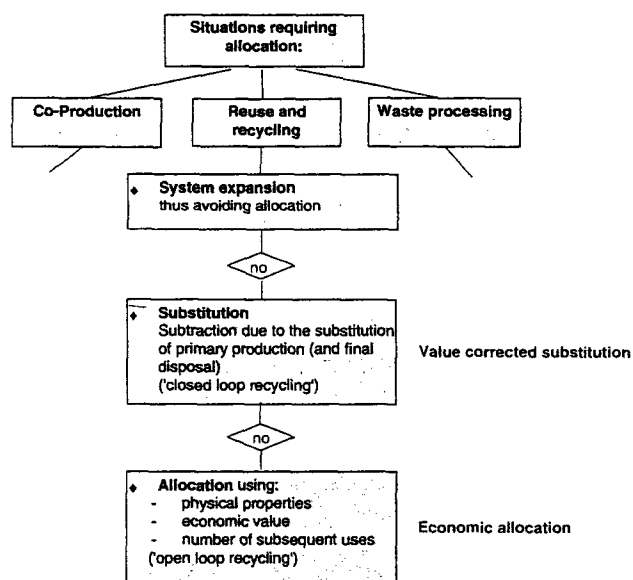


Fig. 1: Stepwise allocation procedure for allocating elementary flows related to recycling and reuse according to EN ISO 14041: 1998, Chap. 6.4

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